IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of the claims in the application:

1. (Original) An ultra wideband receiver that suppresses self-noise, comprising:

a first mixer having a first input, a second input and an output;

a second mixer having a first input coupled to the output of the first mixer, a second input and an output;

a codeword generator configured to generate an n-bit non-return-to-zero codeword having a same predetermined sequence of bits as an encoding codeword used to encode a transmitted data stream and invert a predetermined number of bits of the n-bit non-return-to-zero codeword; and

a wavelet generator having an output coupled to the second input of the second mixer and configured to output a sequence of ultra wideband wavelets having a predetermined shape, wherein

ultra wideband wavelets received via an antenna coupled to the first input of the first mixer, the wavelets having encoded therein the transmitted data stream encoded with the n-bit non-return-to-zero codeword,

the n-bit non-return-to-zero codeword is input to the second input of the first mixer, and

the output of the second mixer is a detection waveform having decoded therein the transmitted data stream.

2. (Original) The receiver of Claim 1, further comprising:

an integrator having an input and an output, wherein

the output of the second mixer is coupled to the input of the integrator, and

a signal output by the integrator is used to decode the transmitted data stream

from the detection waveform.

3. (Original) The receiver of Claim 1, further comprising:

a network coupled between the output of the first mixer and the first input of the

second mixer configured to block a DC component of a signal output by the first mixer.

4-6. (Cancelled)

7. (Original) A method for suppressing self-noise in an ultra wideband receiver,

comprising the steps of:

receiving a received signal of ultra wideband wavelets having encoded therein a

transmitted data stream via an antenna;

generating an n-bit non-return-to-zero codeword having a same predetermined

sequence of bits as an encoding codeword used by a transmitter for encoding the

transmitted data stream, a predetermined number of bits of the n-bit non-return-to-zero

codeword being inverted;

mixing the received signal with the n-bit non-return-to-zero codeword to produce

an intermediate signal;

generating an ultra wideband wavelet signal having a sequence of ultra wideband

wavelets having a same shape as ultra wideband wavelets used by the transmitter of the

received signal; and

mixing the intermediate signal with the ultra wideband wavelet signal to produce

a detection waveform.

8. (Original) The method of Claim 7, further comprising:

integrating the detection waveform to decode the transmitted data stream.

9. (Original) The method of Claim 7, further comprising:

blocking a DC component of the intermediate signal.

10. (Original) A computer program product, comprising:

a computer storage medium; and

a computer program code mechanism embedded in the computer storage medium

for performing an ultra wideband receiver self-noise suppressing method, the computer

program code mechanism having

a first computer code device configured to generate an n-bit non-return-to-zero

codeword having a same predetermined sequence of bits as an encoding codeword used

by a transmitter for encoding a transmitted data stream, a predetermined number of bits

of the n-bit non-return-to-zero codeword being inverted for mixing with a received signal

to produce an intermediate signal;

a second computer code device configured to generate an ultra wideband wavelet

signal having a sequence of ultra wideband wavelets having a same shape as ultra

wideband wavelets used by the transmitter of the received signal for mixing with the

intermediate signal to produce a detection waveform.

11. (Original) An ultra wideband receiver that suppresses self-noise, comprising:

a de-jam code generator having a first input, a first output, and a second output,

the first input being configured to receive a transmit code used by an ultra wideband

transmitter, the first output and the second output being configured such that mixing the

first output with the second output produces a waveform that correlates to a transmitted

waveform being received;

a first mixer having a first input, a second input, and an output, the first input

being configured to receive a waveform from an antenna, the second input being

configured to receive the first output from the de-jam code generator;

a wavelet generator having an input and an output, the input being configured to

receive the second output from the de-jam code generator, and the output being

configured to generate a sequence of ultra wideband wavelets having a predetermined

shape corresponding to an encoding scheme used by the ultra wideband transmitter; and

a second mixer having a first input, a second input and an output, the first input

being configured to receive the output of the first mixer, the second input being

configured to receive the output of the wavelet generator, wherein

the output of the second mixer is a sequence of shaped wavelets having decoded

therein non-return-to-zero data transmitted by the ultra wideband transmitter

12-14. (Cancelled)

15. (Currently Amended) ~~The two-stage ultra wideband receiving circuit of~~ ~~Claim 14, further comprising~~ A two-stage ultra wideband receiving circuit, comprising:

a first stage configured to mix a received signal with a noise suppression code and generate an intermediate signal;

a second stage configured to mix the intermediate signal with a wavelet to generate an output signal;

an integrator configured to receive and decode the output signal to provide a decoded signal; and

a multiplier configured to combine the decoded signal with an adjusting code to provide an adjusted signal,

wherein the noise suppression code is the same length as a transmit code used to encode the received signal,

wherein the noise suppressing code differs in value from the transmit code,

wherein the integrator integrates the output signal separately over two or more portions of the output signal to provide the decoded signal, and

wherein the product of the noise suppression code and the adjusting code is equivalent to the transmit code.

16-17. (Cancelled)

18. (Currently Amended) ~~The two-stage ultra wideband receiving circuit of Claim~~

~~12,~~ A two-stage ultra wideband receiving circuit, comprising:

a first stage configured to mix a received signal with a noise suppression code and

generate an intermediate signal; and

a second stage configured to mix the intermediate signal with a wavelet to

generate an output signal,

wherein the noise suppression code is the same length as a transmit code used to

encode the received signal,

wherein the noise suppressing code differs in value from the transmit code,

wherein the noise suppression code comprises a first noise suppression portion

and a second noise suppression portion,

wherein the first noise suppression portion has equivalent signal values with

respect to a corresponding first transmit portion in the transmit code, and

wherein the second noise suppression portion has inverse signal values with

respect to a corresponding second transmit portion in the transmit code.

19. (Previously Presented) The two-stage ultra wideband receiving circuit of

Claim 18, wherein the second noise suppression portion is a contiguous portion of the

noise suppression code.

20. (Previously Presented) The method of Claim 7, further comprising:

multiplying the integrated detection waveform with an adjusting codeword,

wherein a product of the n-bit non-return-to-zero codeword and the adjusting

codeword is equivalent to a transmit codeword used to encode the received signal.

21. (Previously Presented) The method of Claim 7,

wherein the n-bit non-return-to-zero codeword comprises a first non-return-to-

zero portion and a second non-return-to-zero portion,

wherein the first non-return-to-zero portion has equivalent signal values with

respect to a corresponding first transmit portion in a transmit codeword used to encode

the received signal, and

wherein the second non-return-to-zero portion has inverse signal values with

respect to a corresponding second transmit portion in the transmit codeword.

22. (Previously Presented) The method of Claim 8, wherein the integrating of the

detection waveform is performed separately over two or more portions of the detection

waveform, a combined length of the two or more portions being n-bits.